

## Vegetable Crop Update - #5

June 28, 2007

The vegetable crop update is archived on the Wisconsin Crop Manager website at: <http://ipcm.wisc.edu/wcm/>.

**Potato and Vegetable Crop Update 6/28/07 – Alvin J. Bussan, UW-Madison, Department of Horticulture, 608-262-3519, cell 608-225-6842 or e-mail [ajbussan@wisc.edu](mailto:ajbussan@wisc.edu)**

Potato crops still look to be in good to great condition. Planting is continuing in earnest for a number of processing crops including snap bean and cucumber across many regions of the state. We could use some precipitation in a number of areas especially if the hot weather we received earlier in the week returns as predicted for early next week.

**Potato.** The potato crop is in good to excellent shape across much of the state. The largest tubers of Russet Norkotah, Red Norland, Superior now exceed 2" in diameter. Russet Burbank tubers are well over an inch in size and a number of tubers are approaching 2" in length. Villetta Rose, Bannock Russet, and later developing crops have tubers that are approximately 1" in size.

Many have observed that the crop may be as much as 2 weeks ahead of schedule in growth and development. This creates the opportunity for earlier harvest of processing and fresh market potatoes that are targeted for smaller tuber sizes and earlier harvest markets. Monitor the crop closely by evaluating 2 to 3 hills in succession from the row at 2 to 3 locations across the field. Evaluate the number of tubers and their average size and tuber size distribution to determine the best time for harvest based on market opportunity. More sampling will improve the accuracy of the crop assessment.

Good early season growth also provides opportunity for good crop yield and quality for long season crops. Maintaining healthy vines will allow for extended bulking as the summer progresses, but avoid promoting excessive vine growth. Monitor nutrient status of the crop, especially nitrogen, through petiole sampling and follow recommendations for maintaining optimal crop fertility status.

Irrigation management is equally important. Drought stress during early bulking can increase the potential for stem-end sugars in processing russets. Drought stress during late bulking can limit tuber bulking resulting in reduced yields and tuber solid contents. Drought stress combined with high soil temperatures can have large negative effects on tuber solids which are critical quality parameters for chipping and processing potatoes.

Fortunately cool nights have continued even though daytime highs were around 90 F. Bare ground soil temperatures were in the mid 90's, but with closed crop canopy and good irrigation soil temperatures should be 10 to 20 degrees cooler in the potato hill promoting good tuber growth. The crop is using close to 0.25" of water per day. Failure to meet minimal crop water demand can lead to warmer hill soil temperatures and cause crop drought stress.

## **Off-target herbicide movement: risk-reduction strategies and reminders.**

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Each year at about this time we get a few complaints of suspected herbicide movement to non-target vegetation. While instances of herbicide injury on non-target vegetation are still rare, the risk for such injury has increased in recent years for several reasons. First, expansion and interspersing of residential areas into traditionally agricultural lands increases the chance of non-target exposure. Two acres of farmland are lost every minute of every day in the U.S. (American Farmland Trust 2006). In Wisconsin, about 18,000 agricultural acres per year were developed from 1992 to 1997, representing an increased urbanization rate of 70% over the previous 5 years. Second, recent expansion of specialty and value-added crops in traditional field crop landscape increases the probability that sensitive vegetation is nearby. Vineyards, orchards, ornamental nurseries and organic farms tend to be particularly at risk from nearby herbicide applications. In organic farming, for example, the organic certification that adds value to the crop can be compromised by non-target sources of herbicide residue. Third, some newer herbicides cause very obvious symptomology on non-target plants, even at very low doses.

The Association of American Pesticide Control Officials (AAPCO) conducted a national survey of suspected pesticide drift cases in 2005 (AAPCO 2005). Nationally, agricultural crops were the intended target of 70% of confirmed drift cases, and lawns and landscapes were the most frequent recipient (43%) of drift. Fifty-three percent of cases involved commercial applicators for hire, and 22% involved certified private applicators. In Wisconsin, it is worth noting that more confirmed drift cases occurred from applications to non-agricultural land (51%) than agricultural crops (42%).

Issues surrounding potential non-target herbicide damage to nearby sensitive vegetation can be somewhat mitigated by taking measures to reduce the risk for herbicide movement at or after application. In general, the risk of herbicide movement can be reduced with the following strategies. Keep in mind, though, that all herbicides can drift if applied under the wrong climatic conditions or with poor technique.

1. Don't spray when:
  - a. The wind speed is excessive or the direction is toward sensitive sites. As a matter of fact, a light breeze away from the sensitive site may be the most appropriate timing for an application (check the herbicide label for wind speed limitations).
  - b. Temperature and humidity favor herbicide volatilization (conversion of an herbicide to the gaseous form that can travel long distances). In general, high air temperature and low humidity favor volatilization.
  - c. Air inversions exist. In an air inversion, cool air is trapped near ground level, with a layer of warmer air above it. The inverted air can carry pesticides near ground level to non-target sites, instead of allowing vertical dissipation. Air inversions often occur during calm, clear nights, when ground cooling occurs rapidly.
  - d. Nearby sensitive vegetation is at a sensitive growth stage. Grapes, for example, are most sensitive to phenoxy herbicides from bud break to bloom.
2. Consider pesticide application techniques and equipment

- a. Drift reduction nozzles and spray additives can reduce the risk for spray particle drift, but will not overcome applications during poor climatic conditions, such as on a windy day.
- b. Spraying at lower pressures will increase spray droplet size, thus creating heavier droplets that fall to the target site faster than small droplets that are prone to drift prior to deposition.

**Vegetable Insect Update 6/28/07 – Russell L. Groves, Vegetable Entomologist, Applied Insect Ecologist, UW-Madison, Department of Entomology, 608-262-3229 (office), (608) 698-2434 (cell), or e-mail: [groves@entomology.wisc.edu](mailto:groves@entomology.wisc.edu).**

**Potatoes** - Until very recently, potato producers in the state of Wisconsin have had a range of Colorado potato beetle (CPB) control products available for management of this pest. The neonicotinyl insecticides (e.g. Admire<sup>®</sup>, Platinum<sup>®</sup>, Actara<sup>®</sup>, Leverage<sup>®</sup>, Assail<sup>®</sup>, Provado<sup>®</sup>, and now several generic formulations), registered for use since 1995, constitute the bulk of reduced-risk, potato pest management tools used against CPB. Wisconsin potato growers rely heavily on these neonicotinoid insecticides for the control of CPB. The potential for resistance due to the frequent and now widespread use of these compounds has recently become apparent. Limited assays of adult Colorado potato beetle populations collected in Wisconsin in 2007 suggest that specific, localized populations have developed significant levels of insensitivity (resistance) to the neonicotinoid class of insecticides. These recent results coupled with producer comments that at-plant applications of the neonicotinoids are beginning to break far earlier than in previous years (e.g. 25-30 days post-emergence), suggests a developing resistance management problem. Topical bioassays performed on populations obtained from several regions of Wisconsin in 2007 now document the reality of emerging resistance.

As a result of an early loss in control of 1<sup>st</sup> generation CPB coupled the potential loss of foliar nicotinyl insecticides on these acres, we have requested the option of a Crisis Exemption for the use of a novel insecticide to target control of the 2<sup>nd</sup> generation of CPB soon to emerge in early July, 2007. The exemption is requested as a result of few, to very limited options, for the control of the 2<sup>nd</sup> generation that is traditionally much more difficult to control. This is largely the result of an extended period of time over which summer adults are expected to emerge and produce the subsequent generation. Over the latter half of the growing season (July-September), this generation feeds extensively and age classes (larval instars) are much less synchronous; resulting in all stages present simultaneously. A limited registration for the use of this insecticide would provide growers a control option during the later half of the 2007 growing season. Full registration of this product, as well as two additional new foliar products, is anticipated for the 2008 growing season. Updates on status of crisis exemption label will be provided in the newsletter.

Consideration should be given to monitoring for the incidence of (developing) resistance in specific field locations by gauging the levels of control obtained throughout the remainder of the 2007 growing season. Please feel free to contact Russ Groves, UW Entomology, to discuss the possibility of CPB collections for product insensitivity, or potential resistance testing.

**Onions** – Warm and dry conditions prevail again this week and the risk of onion thrips infestations continue to increase in direct-seeded onion crops. In early transplants, onion thrips

populations have reached threshold (1 immature thrips / leaf), in some locations and initial treatments of spinosad (SpinTor or Entrust) have been applied. Action thresholds for thrips control in the later-maturing, or direct seeded fields, will likely be reached in early to mid-July of this year with continued warm and dry weather conditions. Thrips counts last week averaged 0.2 immature thrips / leaf with only a few adult thrips observed. This week, counts dropped somewhat to 0.1 immature thrips / leaf while a few more adults were observed on the foliage. This observation suggests that perhaps a full generation of thrips may have been completed by the later part of the week of June 11-15 and adults have emerged and begun laying eggs for a subsequent generation.

There are few products available for onion thrips control and they are spread among four insecticide classes (Table 2). No new insecticides have been registered on onion in Wisconsin for 2007. As noted in an earlier newsletter, WI DATCP granted a Section 18 (Emergency Exemption) for Carzol SP to control onion thrips on onion in 2007. Additionally, a Section 24(c)s was renewed for the carbamate, Vydate L in Wisconsin. Insecticide resistance is a concern when managing thrips. In past years, resistance in thrips populations to the synthetic pyrethroids (e.g Warrior) has been observed in some areas of Wisconsin. Thus, caution should be taken when using these products.

**Table 2.** Insecticide classes and product list for each class that are labeled for onion thrips control (Wisconsin Cooperative Extension 2007, A3422 Commercial Vegetable Production in Wisconsin).

Spinosyn	Carbamate	Organophosphate	Pyrethroid
SpinTor 2SC *	Carzol SP	Diazinon AG500	Ambush 25W
Entrust *	Lannate LV	Methyl Parathion EC	Ammo 2.5EC
	Vydate L	Pennacp-M	Mustang Max
		Malathion	Decis
			Proaxis
			Warrior EC

\*Labeled for onion thrips suppression only

**Vegetable Disease Update 6/28/07 - W. R. Stevenson, Department of Plant Pathology, UW-Madison, Tel. No. 608-262-6291, Email: [wrs@plantpath.wisc.edu](mailto:wrs@plantpath.wisc.edu)**

**Potato:** Rows are filling rapidly, the crop is in bloom and the foliage appears healthy. What could be better? However, it's that time of year when early surveillance and identification are keys to better disease management. Early blight symptoms are showing up on the lower (older leaves) of the first emerged fields. This is right on target with the accumulation of 300 P-Days since emergence. We are now past the spray threshold of 300 P-Days on the earliest planted fields. Fungicide sprays for early blight control should be starting if growers have not already started their spray program. It is important to achieve thorough coverage of all foliage, but

especially important to get spray coverage on the older foliage since these older leaves are the most susceptible to infection by the early blight pathogen. Late blight severity values are slowly increasing and it is likely that we will surpass the 18 severity value threshold for fungicide treatment later this week. There are no reports of late blight in Wisconsin and none have been reported in the region to my knowledge. At this point, proactively treating with protectant fungicides will decrease the already low risk of late blight. Those treatments used for early blight control (mancozeb, chlorothalonil, metiram, strobilurin and fixed copper fungicides are all good choices for preventative management of late blight as well. If and when late blight appears, we have several late blight products that will bolster protection. We'll hold those products in the wings until needed.

**Current P-Day (Early Blight) and Severity Value (Late Blight) Accumulations**

	Planted:	50% EMERGENCE	P-Days	Severity Values	Calculation Date
Antigo area	Early - May 8	May 31	184	11	6/25/07
	Mid - May 21	June 10	109	4	6/25/07
	Late - June 1	June 18	50	4	6/25/07
Grand Marsh area	Early - Apr 16	May 12	<b>309</b>	13	6/25/07
	Mid - Apr 20	May 18	276	13	6/25/07
	Late - Apr 27	May 28	211	13	6/25/07
Hancock area	Early - Apr 16	May 8	<b>333</b>	12	6/25/07
	Mid - Apr 24	May 14	292	12	6/25/07
	Late - May 2	May 23	239	12	6/25/07
Plover area	Early - Apr 14	May 8	<b>336</b>	16	6/25/07
	Mid - Apr 20	May 15	288	16	6/25/07
	Late - May 2	May 22	244	16	6/25/07
Spoooner	Mid - May 4	May 30	182	2	6/22/07

All weather stations are now answering their phones so the problems were having in downloading data are hopefully behind us for the season.

Visit our web site at (<http://www.plantpath.wisc.edu/wivegdis/index.htm>) where you can find updated P-Day and Severity Value information throughout the growing season.

**Peas and Snap Beans:** Peas are being harvested and disease pressure is low this year. Cool nights and warm days have pushed the crop ahead rapidly. Snap bean fields are exhibiting excellent stands and growth. Many processors fit snap bean into the potato rotation where fumigant is applied for control of soilborne pathogens. Usually the benefit extends over to management of Pythium and Aphanomyces root rot on peas and beans and allow the processor to produce high yields and quality harvests for one year of production. The approach has reduced disease losses in both peas and snap beans. Couple this with some of the new snap bean cultivars having improved resistance to root rot and bacterial leaf blight and overall disease management is improved. The downside of fumigation is that it greatly reduces biological controls useful in managing white mold. If the biological control, Contans, is applied for management of white mold, Contans needs to be applied after fumigation and before a crop of snap beans is planted.

**Other Vegetable Crops:**

**Tomatoes** – Symptoms of Septoria leaf spot are now appearing on older tomato foliage as circular lesions with gray centers and dark brown borders. Rainfall and irrigation will spread the pathogen so protective fungicide sprays are needed now for control if first symptoms are present.

**Cucumbers** – There are reports of downy mildew on cucumbers in Ontario and Ohio. This is still a ways off in terms of geography, but it says that within the Midwest, conditions have been favorable for disease development early in the season. We saw our first downy mildew in Wisconsin late last season with significant losses in affected fields. Beware of diffuse somewhat angular yellow leaf lesions with a purplish fuzzy growth on the undersides of leaf lesions. The disease moves quickly during cool and wet conditions so if you observe questionable symptoms, get a sample in to us for diagnosis.

Some growers have experienced intense feeding injury by the striped cucumber beetle. Since this beetle is a key vector of bacterial wilt, I expect to see individual plants and vines wilting suddenly, even in the presence of optimum soil moisture. Once wilting occurs, it's too late to save the individual plant, but removal of wilted plants can be helpful since these wilting plants can be sources of inoculum for further spread in the field through additional beetle feeding.